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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,244	12/07/2004	Hiroyuki Morioka	112857-402	3110
29175	7590	11/30/2006		EXAMINER
BELL, BOYD & LLOYD, LLC				WARTALOWICZ, PAUL A
P. O. BOX 1135			ART UNIT	PAPER NUMBER
CHICAGO, IL 60690-1135				1754

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/517,244	MORIOKA ET AL.
	Examiner	Art Unit
	Paul A. Wartalowicz	1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

- 1) Responsive to communication(s) filed on 22 September 2006.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

- 4) Claim(s) 27-32 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 27-32 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

***Withdrawn Rejections***

The rejections under 35 USC 112, second paragraph have been withdrawn.

***Response to Arguments***

Applicant's arguments filed 9/22/06 have been fully considered but they are not persuasive.

Applicant argues each of the specific examples in Pecharsky identify a material made from  $\text{LiAlH}_4$  and not an aluminum hydride, such as  $\text{AlH}_3$ .

However, the specific examples are not limiting. Pecharsky et al. teaches a solid hydride of **formula  $\text{AlH}_3$**  (Column 4, lines 11-28, line 24 in particular) and that the hydride releases hydrogen at temperature in the range from  $-200^\circ\text{C}$  to about  $100^\circ\text{C}$  (Column 4, line 65 through Column 5, line 5). From this disclosure, Pecharsky et al. teaches aluminum hydride as a solid hydride suitable for the invention of Pecharsky et al. As to the arguments drawn to the differences between alanates and aluminum hydrides, the materials of Pecharsky et al. appear to be the same as those which are claimed and therefore would inherently exhibit the same hydrogen capacity.

Applicant argues that the specific example in Pecharsky merely provides for the use of a single catalyst, namely  $\text{TiCl}_4$  and that this contrasts the claimed dopant as further defined in claims 29-32.

However, Pecharsky is not limited to a specific example in the disclosure. Pecharsky et al. teaches the use of a catalyst in combination with the hydride, the catalyst selected from metals belonging to periods III to V of the periodic table **or**

**mixtures thereof** (Column 4, lines 42-52). From this general disclosure, Pecharsky et al. discloses multiple element catalysts in combination with the hydride.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 27 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

It is requested that applicant point out the recitation in the specification that provides support for the amendments to claims 27 and 28.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 27-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Pecharsky et al. (6773692).

Pecharsky et al. disclose the instantly claimed hydrogen occluding material and the method of using the hydrogen occluding material. Pecharsky et al. teaches a solid hydride of formula  $\text{AlH}_3$  (Column 4, lines 11-28, line 24 in particular) and that the hydride releases hydrogen at temperature in the range from  $-200^\circ\text{C}$  to about  $100^\circ\text{C}$  (Column 4, line 65 through Column 5, line 5). Pecharsky et al. also teaches the use of a catalyst in combination with the hydride, the catalyst selected from metals belonging to periods III to V of the periodic table (Column 4, lines 42-52), that the catalyst and hydride are powders (Column 5, line 6), and also that the catalyst is present in an amount of about 0.1-25 mol%, about 1-15 mol%, or even about 1.5-10 mol% (Column 4, lines 53-64). Pecharsky et al. even specifically teaches in examples the use of lithium in addition to Ti (Example 1-2 and 4) and Fe (Example 3) as the catalyst dopant. No difference is seen between the instantly claimed invention and Pecharsky et al.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 29-32 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Pecharsky et al. (6773692).

Pecharsky et al. disclose the instantly claimed hydrogen occluding material and the method of using the hydrogen occluding material as described with respect to claims 27 and 28 above.

If the teachings of Pecharsky et al. as described above do not anticipate the instantly claimed limitations, they would be obvious because Pecharsky et al. specifically teaches that the catalyst to be included in the material is a transition metal, and specifically comprises "a transition metal of the 3<sup>rd</sup> (Sc through Zn), the 4<sup>th</sup> (Y through Cd), or the 5<sup>th</sup> (Hf through Hg) period of the periodic table, or lanthanide elements (La through Lu), or their derivatives, or mixtures thereof" and that titanium is preferred in Column 4, lines 42-52. This teaching includes not only groups III-V of the periodic table but also includes Cr, Fe, and Ni; thus Pecharsky et al. teaches that mixtures of this may be used. Furthermore, Examples 1-2 and 4 teach an aluminum hydride that contains both lithium (an alkali metal) and titanium (a transition metal of groups III-V).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Paul Wartalowicz  
November 25, 2006



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